

Notice of Allowability

Application No.

10/670,926

Examiner

Satya B. Sastri

Applicant(s)

GUO ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed on February 21, 2006.
2. ☒ The allowed claim(s) is/are 1-10, 13-20, 23, 25, 26, 41-45 and 49-54.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

EXAMINER'S COMMENT/REASONS FOR ALLOWANCE

1. All previous rejections have been overcome by the amendment filed amendment filed on February 21, 2006. Claims *1-10, 13-20, 23, 25, 26, 41-45, 49-54* are pending in the application. Since the adhesive composition with the elected species is found novel, search was extended to include other non-elected species as well.

Reasons For Allowance

2. *Claims 1-10, 13-20, 23, 25, 26, 41-45, 49-54* are allowed.

3. The following is an Examiner's Statement of Reasons for Allowance:

The instant claims are allowable over prior art teachings of Zhao et al. (US 6,242,515) and Mestach (US 6,444,749).

The present claims are directed to an adhesive composition comprising crosslinked aqueous emulsion polymer comprising at least one hydrophobic monomer, greater than 1 wt.% of at least one hydrophilic monomer, greater than 3 wt.% of at least one olefinically unsaturated monomer having an aldehyde or ketone group, optionally at least one partially hydrophobic monomer, an effective amount of at least one water soluble or water dispersible polymerizable surfactant selected from compounds having terminal allyl amine moiety, substituted phenyl compounds having at least one alkenyl substituent, polyoxyalkylene-1-(allyloxymethyl)alkyl ether sulfate salts, or mixtures thereof; wherein the crosslinked aqueous emulsion polymer is

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crosslinked with at least one polyhydrazide crosslinker and the mean particle size of the crosslinked polymer is less than 400 nm.

Prior art to Zhao et al. discloses aqueous binder compositions comprising polymers derived from a variety of monomers and crosslinking agents. Specifically, example 1 discloses a polymer that comprises monomers (a), (b) and (c) recited in instant claims. The particle size of the uncrosslinked polymer particle is 280 nm. The polymer does not include monomer (e) which is the polymerizable surfactant monomer as recited in instant claim 1. Additionally, in contrast to the instant invention, the primary reference discloses that the composition comprising the uncrosslinked polymer and hydrazide type crosslinking agent undergo crosslinking reaction between the NH₂ group and reactive center of polymer only when, as the result of aqueous phase being evaporated, i.e. when the composition sets, the concentration of the particles increases. Since crosslinking occurs at the surface, it is foremost between the polymer particles and not within them. The majority quantity of the polymer in the polymer particles remain uncrosslinked (column 8, lines 47-67 and column 9, lines 1-4). Thus, the limitations of mean particle size of crosslinked particle as being less than 400 nm, a composition comprising crosslinked aqueous emulsion polymer and a polymerizable surfactant monomer as recited in claim 1 are not taught or suggested by the prior art to Zhao et al.

Mestach et al. disclose aqueous dispersions of particles with a glass transition temperature gradient. The polymer with crosslinkable functional groups are obtained by free radical emulsion polymerization of at least two different ethylenically unsaturated monomers, a surfactant based on C₆-C₂ alkyl half ester of maleic acid salt. Example 2 discloses the preparation of the crosslinked polymer with a particle size of 87 nm. The inventive feature of the

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this prior art is the aqueous dispersions of particles with a glass transition temperature gradient obtained by free radical emulsion polymerization of at least two different ethylenically unsaturated monomers and a surfactant based on C6-C2 alkyl half ester of maleic acid salt. Thus, one skilled in the art would not be motivated to replace the reactive surfactant monomer as disclosed therein by water soluble or water dispersible polymerizable surfactant selected from compounds having terminal allyl amine moiety, substituted phenyl compounds having at least one alkenyl substituent, polyoxyalkylene-1-(allyloxymethyl)alkyl ether sulfate salts, or mixtures thereof as recited in instant claims.

Therefore, the instantly claimed invention is deemed allowable over closest prior art of record as per said art neither anticipating nor rendering, alone or in combination, the instantly claimed invention.

Any comments considered necessary by applicant must be submitted no later than the payment of the Issue Fee and, to avoid processing delays, should preferably accompany the Issue Fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Future Correspondence

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Satya Sastri whose telephone number is 571-272-1112.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone numbers for the

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organization where this application or proceeding is assigned is (571) 273 8300 for regular communications. The unofficial direct fax phone number to the Examiner's desk is 571-273-1112.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



SATYA SASTRI

May 10, 2006



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SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700